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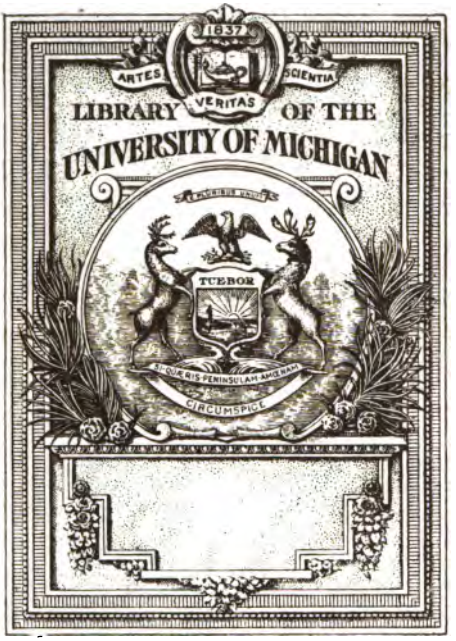

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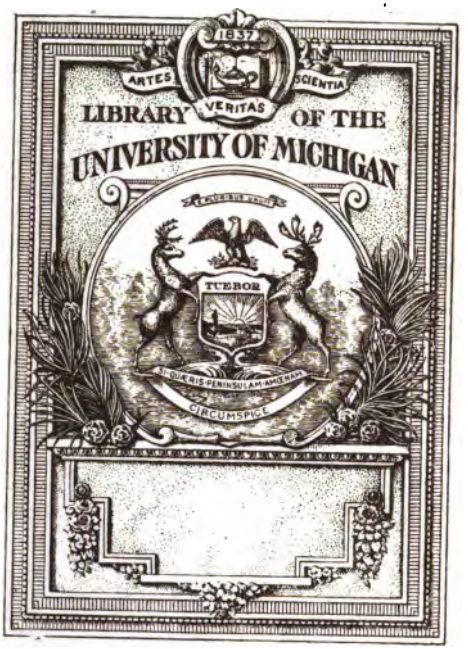

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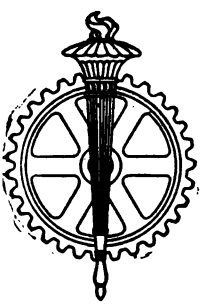
BUSINESS ADMINISTRATION

THE SCIENTIFIC PRINCIPLES OF A NEW PROFESSION

BY

EDW. D. JONES



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INTRODUCTION

In this remarkable study, which appeared first serially in the pages of *The Engineering Magazine,* Professor Jones gives the results of an analysis of history in the interest of the business executive. His undertaking is to review the work of the world's great leaders in war, statesmanship and science, in order to obtain therefrom maxims and principles which are valid for business operations. This is in harmony with the whole present tendency of industrial thought and effort, which everywhere seeks to crystallize the achievements of the past into definite data and laws, certainly to be relied on for progress in the future. To a remarkable extent the effort of thinkers and workers in the field of industrial engineering is now toward formulation of principles of organization, administration, and management, by which the executive may test himself and his associations, or by which he can safely build new organizations or extend old ones.

Professor Jones' book is an active expression of this tendency. His argument is, briefly:

First—That success in dealing with men and affairs must depend on certain basic principles and laws which can be discovered by studying the conduct of successful administrators;

Second—That the rules and methods followed by masters of business and finance are almost always intentionally hidden and there is no accessible chronicle that throws clear, full light on their lives and actions;

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Third—That national, military and scientific leaders, on the contrary, are world-illuminated figures whose careers and practice are revealed in the most searching light by public and private record—disclosed by themselves in word and action, preserved in public documents, in private communications, even in petty gossip.

From such data Professor Jones deduces definite primary principles of business administration. These are concisely and luminously codified in his chapters, and they constitute a most important contribution to the scientific study of business organization and management. More than this, they become part of a library already enriched by others who have expressed industrial philosophies and practical doctrines in English so luminous, by logic so triumphant, with inspiration so uplifting, that they prove again—as great masters of thought have proved in other fields—that literature may and can be made a co-worker and partner with science.

CHARLES BUXTON GOING.

THE UTILITY OF THE STUDY OF HISTORY

BUSINESS ADMINISTRATION

A NEW PROFESSION

CHAPTER I

THE UTILITY OF THE STUDY OF HISTORY

THE art of administration is as old as the human race. Even the leading wolf of a pack is an administrator. Organization is older than history, for the earliest documents, such as the code of Hammurabi, show the evidences of many generations of systematized social life. The real pioneers are the unknown promoters of the stone age, and the system-makers of the bronze age. Long ago almost every conceivable experiment in organization was first made. The records of history tell us of large units and small ones, of great and slight differentiation of functions, of extreme division and extreme concentration of authority, of mild and severe sanctions, of appeal to system

and appeal to passion, of trust in numbers and trust in leadership. Of the vast variety of units of organization through which human intelligence has worked, and through which human purposes have been achieved, or thwarted, the greater part has passed away; and the names of them, even have been forgotten.

In politics, the evolution has passed through the horde, the patriarchal family, the clan, and the classical city State. Nations have tried despotisms, oligarchies and theocracies, absolute and constitutional monarchies, and republics. In military matters the phalanx gave way to the legion and cohort, and these, in turn, to the division, brigade, regiment, battalion, and company. Throughout history, the survival of the fittest, as between nations, has been fought out, in part, on the basis of the ability to use organized and co-operative methods of action. What a wealth of experience has been gained—and lost! How many times, in the long journey of history, have underlying administrative principles been, with enthusiasm, discovered,—and rediscovered!

And yet we seem to have accumulated but a small reserve stock of knowledge on this im-

portant subject. We are still eagerly searching for the most elementary principles of administration. With countless generations of experience, in the conduct of affairs, behind us, the individual business executive of today is feverishly trying to broaden and intensify his personal experience—to live fast and hard, so that, in the short span of his life, he may discover *de novo,* for himself, the principles and policies required in the government of the complicated economic organizations of the present day.

Since a knowledge of the principles of administration is now of so great importance, we should add to the agencies now being established for the study of current performance a provision for the systematic review of the history of administration. An analogy exists between the present needs of the American business executive, into whose hands in a generation a great increase in power has come, and the needs of the German army officers before the development of that splendid system which made Germany the leading military power of the world. A hint may, therefore, be gained from their experience. The Prussian General Staff and War College were organized to gather all

engineering, topographic, and other technical knowledge, which could be made of use in war. But, especially, there was entrusted to them the function of reviewing military history in a scientifically thorough manner, to obtain from it the maxims and principles which possess validity for future operations. In the hands of general historians, history is worthless for military guidance; but to Scharnhorst, von Clausewitz, von der Goltz, von Moltke, and the other students of the General Staff, is due the credit of having so sifted their facts, and so brought them to bear in the criticism of principles, that they have made them a firm foundation for the scientific conduct of war. Nor have they confined their attention to military affairs alone; the entire history of administration has been laid under tribute. The suggestion we would offer is that a similar study of administrative history should now be made in the interest of the business executive.

This study, to be fruitful, must be strictly scientific in its character. Many men of affairs are much prejudiced against the invasion of business by science and theory. They conceive of these things as something new and untried, and something opposed to

experience. A certain excuse for this view exists in the fact that the scientific method has, thus far since its discovery, been applied most prominently to facts which ordinary experience does not furnish, but which are attainable only through the somewhat rigid and refined methods of the laboratory. Many persons have concluded from this that the method can not be applied to the facts of ordinary experience.

Again, the results of science which have come forth from the laboratories, in the form of theories, have often presented themselves in the guise of something new and not previously heard of, and something requiring the most suspicious treatment before being admitted to any part in practical affairs. And so again, a conflict between new and old, between "theory" and "practice," has seemed to exist.

He would be a rash man, in this day of grace, who would deny that laboratory science has gloriously triumphed, and made contributions of incalculable worth to the advancement of the human race. This triumph is a demonstration of the efficiency of the scientific method. It certainly establishes a presumption that its application to bodies of

fact which arise outside the laboratory will also be attended by valuable results. It may be safely affirmed that the way by which a maximum utilization of experience can be attained is through the application of the scientific method. Only in the delicate scales of science can the complicated conditions of practical affairs be accurately weighed, and the various factors contributing to success or failure be disentangled and separately appraised. Through its careful method of study alone, can we be sure that the part which accident and favor have played has been reasonably allowed for. This much the application of science to the recording and measuring of current performance is now demonstrating. The riches of past experience still constitute a great unutilized opportunity for science to render service.

The fundamental bases upon which the scientific method rests are two. The first is that all parts of truth are in harmony with all other parts. If there is not a rational order in the world, the mind of man is incapable of understanding the universe in which it is placed. The second basis is that any truth possesses equal validity for every normally constituted mind. On these two

bases the scientific method proceeds. This method is not different in kind from the methods of ordinary observation and thinking; it rather differs from these in degree. Briefly characterized, it is an orderly, persistent, and thorough use of the mind. More fully stated, the scientific method is the analysis of problems into their elements; an extensive and thoroughly adequate collection of data; an exact and truthful classification of facts on the basis of their nature; such an arrangement and grouping of them as will best reveal agreements, differences, and concomitant variations between them; and the making of inferences, or the discovery of new facts, by means of induction, deduction, and analogy. The new truths, or inductions, are then subject to criticism and test in every possible way. The scientific method calls for the eradication of prejudice which may interfere with the just estimate of any facts; and it requires open-mindedness, or willingness to receive new facts at any time, and to make such revisions in conclusions as may be required.

This method is universal in its applicability. It can be set at work upon the organizations of which we find records in

history, as well as upon the fossil remains of organisms in the earth's strata. It can work upon data which are the product of the most haphazard, partial, or impassioned of experiences, as it can upon the exactly controlled processes of a laboratory experiment. The results obtained will, of course, depend upon the quality of the materials furnished to it, and upon the degree to which the material can be controlled to compel it to reveal its true nature completely and clearly.

When, now, we turn to the practical consideration of the study of the history of administration, various objections interpose themselves. For one thing, there is very little history of private business administration available. Many men prominent in industry and commerce, in the past, have left us no records. Some of them, no doubt, made their way by tact, or overmastering personal energy, in spite of defective administration; some have preferred darkness because their deeds were evil. Many excellent administrators have never formulated their ideas far enough, dressing away the incidents of time and place, to enable them to observe that there were permanent

principles underlying their actions. Competition has often spread a mantle of secrecy over the essential facts.

Some of these forces, which have repressed economic facts from the record of history, may be seen at work in America today. A generation of great leaders, which developed with the progress of the country's industry, and has come up from the day of small things to an exercise of power rivalling that of the rulers of kingdoms, is now passing off the stage of action. With rare exceptions, these men vanish away mute, leaving no autobiographies. Examine a British book list and you will find that every month some diplomat, or officer of state, or traveler, or colonial governor has, in the evening of life, set down whatever may be of permanent value in his experience, and published his reminiscences. In no country of the world have greater things been done, during the last generation, than in America; but our doers of them are inarticulate. Conscious enough that the tangible things they have wrought will quickly crumble, they yet fail to round out the purpose of life, and distill a final essence of principles and policies which might pos-

sess lasting utility. Their estates are scarcely distributed before the question, "How did they achieve their success?" is given up forever.

In this dilemma we may turn to the history of political and military institutions, and find ample materials for the study of administration. These lines of activity have swept together millions of people into single organizations, and have made the leaders the cynosures of innumerable eyes. If Crassus, at one time the richest man in Rome, is little more than a name to us, we know of his contemporary, Cæsar, the private life, the motives and methods, the hesitations and resolves. If there is but an odd book or two of colorless record of Mayer Bauer, the Napoleon of Finance of the latter half of the eighteenth century, and the founder of the house of Rothschild, we have of his contemporary, the Emperor Napoleon, an enormous literature, contributed to not only by the great men who either aided or opposed him, but by his valet and the palace ladies-in-waiting. Thus there has been insured, in certain departments of administration, at least, searching publicity, and an abundant record.

But another difficulty will doubtless be urged, namely, that industry is neither war nor politics, so that the study of the administrative methods used in those fields will not yield results which can be applied to the conduct of industry. The usages of common speech indicate, however, that we constantly observe the similarity between the forces and conditions in these fields of activity. We commonly speak of "captains of industry," of the "strategy" of great business, and of "tactics" and "campaigns," and "line" and "staff." Argument from analogy is one of the valid forms of reasoning. It is the method of homologous series, which rests upon the assumption that what is true of one set of circumstances is likely to be true, in some degree, of similar sets of circumstances. It fastens upon a resemblance between two sets of relations, by which each case is made to reveal more fully the nature of the other.

As a means of gaining insight, analogy has been used since the dawn of wisdom. In the Bible we find the deepest spiritual truths suggested by analogies from nature, and from the simple relations of the household and the crafts. In the parable of the

sower, we review the various types of human nature. By means of the porter, commanded to watch lest his lord, returning suddenly, find him sleeping, and by the man trying to serve two masters, we learn of surprise tests, and indefinite responsibility. In the case of the house divided against itself we see the evil of faction, and of departmental rivalries. In the piece of new cloth sewed onto an old garment, and the new wine put into old skins, we learn the law of harmonious co-ordination of agencies.

The strictness of an analogy depends upon the similarity of the subject matters involved. If we compare organizations for war and politics with those for industry, we shall find the conditions vital to administrative success markedly similar. There is the same human nature, with its equipment of physical and mental faculties. The same protection is required against carelessness, laziness, jealousy, fear, and selfishness; the same reliance can be placed upon generosity, intelligence, energy and loyalty. There are always the unchangeable factors of time, space, and the properties of matter and force, presenting themselves in different de-

grees of importance. Some of the factors change in their nature, though gradually; knowledge increases, and the state of the arts progresses; so also do the customs of society, and the moral standards which must be observed. For these changes allowance can be made, and should be made with the greatest care.

The peculiar value of analogy is that by it certain cases, in which relations are clear and conspicuous, are used to familiarize the mind with the nature of the relation, so that, when similar phenomena, differently grouped, are studied, we are able to detect the relationship, even though it be subtle and partly hidden in its new form. We know that when once a figure in a picture-puzzle has been pointed out it seems so prominent that we wonder how we could have previously overlooked it. One hears a note in a chord distinctly, when it has been previously sounded separately. So the analogy aids us by familiarizing us with the idea of the relationship for which we seek. When we know intimately the characteristic signs of a thing, we are able to detect its presence or absence confidently and readily.

The greatest body of valuable data on any particular subject is likely to be found where circumstances have made the element of performance, in which we are interested, of unusual importance, or where a force has triumphed over unusual opposition, or where a man of unusual capacity has obtained the authority and resources to do things. We should seek for the circumstances which have specially emphasized or stressed the thing we would study, for there the principles of which we are in search are so developed and magnified as to make their study easy. An administrator who desires to follow this rule will, for example, turn to military operations to observe how leadership has been exercised when responsibilities are terrifying, and the greatest resource of soul is required to make decisions. Or in diplomacy, he will find circumstances which emphasize harmony and balance of character, and respect for custom. If one would study preliminary preparation, he may examine Nansen's remarkable preparation for his journey in the Fram; if one desires to study economy of time he may advantageously begin with a city fire department. A knowledge of the

military manual of arms would be a suggestive preliminary to motion study, and an examination of the national mints would suggest methods of preventing waste.

In the study of the extreme case, the thing sought is presented distinctly and emphatically to the attention. And this is a great advantage, for all perceptions tend to fuse in the mind into a general impression, unless forcibly prevented by the expenditure of the energy necessary to effect their analysis and separate consideration.

This suggests the value, to the student of administration, of giving himself free range over the entire field of administration, not confining himself to industrial administration alone; for only by wide comparisons will he be able to select the type of cases which most clearly reveals to him the workings of the force he desires to study. The person who cuts himself off from subjects analogous to his own loses something of the force of the contrasts and similarities of the facts with which he deals. To refuse the comprehensive and flexible service of analogy is to rob oneself of much of the resource by which the probability, or improbability, of all forms of conclusions is established.

Chapter II

MILITARY HISTORY

MILITARY HISTORY divides itself broadly into great periods, in each of which certain definite ideals and enthusiasms have moved the minds of men, seeking embodiment in appropriate military units and authorities, and finding expression in characteristic movements of strategy and tactics. Let us briefly glance at the leading characteristics of some of these periods, with a view to suggesting analogies which have interest from their bearing upon the administration of industrial enterprises.

ROMAN ARMS

The Roman military unit was the legion of from 4,000 to 6,000 men, divided into ten cohorts. The strength of Roman arms lay in three things. The first of these was a careful selection of men from among such citizens as were practiced in arms. The second dependence was upon discipline. Warlike youths were accustomed to the use of arms as a recreation, so that it was said that their sports were battles without blood-

shed, and their battles bloody sports. The third point was the prompt adoption of all improvements suggested by the experience of foreign wars. The Roman legion was practically never defeated, so long as these three principles remained in force. The secret of its strength was the spirit of the men who, in their perfect discipline, expressed their glory in Rome, and their confidence in themselves.

The most brilliant achievements of this military instrument were attained by Cæsar, who aroused the devotion of his troops to the highest point by making common cause with them in the pursuit of valor. As Plutarch says, "He showed them that he did not heap up wealth from the wars for his own luxury, or the gratifying of his private pleasures, but that all he received was but a public fund laid by for the reward and encouragement of valor."

Defeat came to Roman arms only when numerous wars had made it necessary to sweep together heterogeneous classes, which did not feel the old confidence in each other, and to introduce barbarians who did not feel enthusiasm for Roman triumphs. Rome fell, furthermore, because it became a house

divided against itself. The civil wars made it no longer Rome for which the troops fought, but the triumph of a faction. The leaders of factions being disinclined to disband their armies, the civilian troops disappeared, and in their place came bands of paid professional fighters.

THE BYZANTINE EMPIRE

After the decline of Rome, the center of the world's military progress was, for seven or eight centuries, transferred to the Greek empire. Constantinople ruled elements of a much less homogeneous nature than Rome, in her prime, had depended upon. There was less loyalty to the central rule there, and far less liberty under it.

The decisive military fact of the East was, however, that Byzantium had to contend against overwhelming numerical superiority in its enemies. South of it, from the Indies to the Atlantic, was the Saracen empire, burning with the zeal of a new religion. To the east were the Seljuk Turks, while to the north were the Bulgarians, and the Slavonian and Hunic tribes.

Against such odds it was useless simply to match man for man. The military leaders of the empire were full of military

spirit, and took keen delight in war as a game; but they were the descendants of Ulysses, and they made of war a game of finesse and cleverness—in short, a war of wits. They had the greatest contempt for the reckless hard-hitters of the West who plunged into battle without ensuring to themselves every possible advantage. The strategists of the East, by their spying and bribes, by stirring up treason in the enemies' camp, by surprises, simulated retreats, and ambush, illustrated the saying of Bacon that stratagem is a weaker kind of policy, used by those who are not strong enough to win by fairer methods.

The Byzantine empire, weakened by the destruction of its patriotic middle classes, and robbed of the protection of buffer States through its own folly, was finished by the marauding expedition called the Fourth Crusade; and it broke into fragments.

MIDDLE AGES

When the Roman empire became a shadow, and the Church was the one remaining bond of Western Christendom, political rule in Europe was scattered into the hands of numerous feudal lords. Military operations were carried on then by small bands of

aristocratic mounted men in armor, who followed the banners of their over-lords through fealty. The Roman troops were originally infantry, but the mounted plundering hordes of eastern Germans and Hungarians had already, in later Roman times, forced some of the legions to mount, in order to gain in speed. For western Europe, the call to horse was given by the terrifying raids of the Vikings. Armor was necessary because of the introduction of the long bow and cross-bow, the pike, the two-handed sword, and the axe.

In armor and in the fortification of towns the defensive gained, during the Middle Ages, a temporary advantage over the offensive, with consequent disintegration into small military units. Armor and fortifications were, however, but negative measures, so that when the Viking raids became more frequent and extended, and were followed by permanent settlements, it became necessary to increase the power of the offensive, by combination into larger units. Loyalty to local lords gave way, therefore, to loyalty to the king. The royal armies, which, at first, were small shabby bands of mercenaries, received additions of

superior quality from the nobility. This movement toward concentration was hastened and completed by the introduction of firearms, which took away the superiority of the aristocratic professional fighter, and enabled the fortifications of castles and cities to be speedily battered down.

FREDERICK THE GREAT

The crowning example of a royal army, used as the personal weapon of a sovereign who united in his hands absolute political rule and the powers of a commander-in-chief, is the army of Frederick the Great. The way was prepared for this great Prussian genius by a thrifty father who built up an army and a treasury for him. As an administrator, the father stands in much the same relation to him that a Benjamin Franklin, expounding maxims of thrift, would bear to a dashing organizer like E. H. Harriman.

Frederick was an intensely active, highly capable, strong-willed and self-reliant commander. He concentrated all power in his own hands, reducing his ministers to clerical work, and his generals to the duties of personal lieutenants. Below him the Prussian

administration was a thing of stiff and mechanical obedience, lacking in initiative and individuality. Several of Frederick's military losses were due to the fact that he gave his generals such minute orders, and was so severe in case of disregard of instructions, that they did not dare to use their own judgment, when unforeseen conditions presented themselves. He personally foresaw and provided for everything; he inspected frequently and thoroughly, and his sharp eyes saw everything. His discipline was severe and knew neither gratitude nor resentment. His calculations were accurate and his plans were limited to what was possible. His movements, which were skillfully disguised, were rapid. So superior was Frederick to his opponents in strategy that they were obliged for safety to keep their troops in concentrated form, and dared not give themselves sufficient space for effective manœuvres. To him was due the invention of the oblique order, a system of concentrating upon one point in the enemy's line by means of attack at an angle. He was more capable in marching and manœuvre than in battle; more capable in battle than in siege. It was his

practice to follow success with vigorous pursuit, but in defeat, like Hannibal, he became only the more active and dangerous.

His great defect as an administrator lay in the fact that he dwarfed the growth of those below him, and so educated no talented corps to bear the political and military burdens of the State, when he should be obliged to lay them down. He apparently could do things only through himself. Having a supreme contempt for the capacities of most mortals, he had no mind to make experiments which might have changed his opinions. Although he knew, for many years, that his successor was to be a man without ability, he handed down to him a system which required a Frederick. We may say that he brilliantly administered a system which was badly organized.

After his death, the prestige of his name and deeds was so great that it was considered blasphemy to suggest that any change could improve the Prussian army. Its methods could, therefore, suffer no alteration, except a refinement of punctilios, such as drill and uniforms. This army which had gloriously finished the seven

years' war in 1763, against the united force of nearly the whole of the Continent, was utterly routed by hesitating and divided leadership when it met Napoleon at Jena, in 1806, twenty years after Frederick's death.

NAPOLEON

Napoleon and Frederick resemble one another, in many ways, as administrators. The aims of the two men were, however, entirely different. While Frederick was devoted wholly to the advancement of Prussia, identifying himself completely with his people, Napoleon desired power as a means of personal aggrandizement, and was at the bottom selfish and vain.

As military leaders the great difference between the two men lies in the fact that while Frederick's army was a small professional one of recruits hired whenever they could be secured, Napoleon had the leadership of civilian armies enormously larger than any ever before put in the field. The French Revolution awakened the passions of the common people of France so that, when the monarchs of Europe combined in an attempt to force royalty back upon them, they flocked in great numbers

to the national standards. These men were animated by a terrible intensity of spirit and purpose, and willingly met deprivations in the field. The officers dispensed with the camp luxuries characteristic of the other armies of Europe; and the men marched with light knapsacks, so that they surprised the world by their rapidity of movement. When, in the later Napoleonic campaigns, conscription took the place of volunteering, and a war of defense of a republic changed into one of offense for an empire, Napoleon knew how to arouse in the breasts of his men the love of glory as a mainspring of action.

The leading military principles of Napoleon were to seize the initiative by concentrating his forces from marching into fighting order as quickly as possible, and, having massed the troops as compactly as effective action would permit, to attack swiftly.

This attack must be made upon a portion only of the enemy's army, and the weight of one's whole force must be crowded in, so that at the point of action a decided superiority is attained. This theory of action he often explained to his generals. Moreau,

in conversation with Napoleon in 1799, remarked that it was always the greater numbers that won. To which Napoleon replied: "You are right. When, with inferior forces, I had a large army before me, I concentrated mine rapidly, and fell like lightning upon one of the enemy's wings and routed it. Then I took advantage of the confusion which this manœuvre never failed to produce in the opposing army to attack it on another point, but always with my whole force. Thus I beat it in detail, and the victory which was the result was always, as you see, the triumph of the larger over the lesser."

In one way Napoleon possessed a defect similar to that of Frederick. He provided no adequate staff to relieve himself of details. During his early years he made up for this lack by remarkable physical activity, but when still in early middle age his energies began to decline. He allowed himself ease and luxury, and showed an increasing dislike for the hardships of the field at a time when his enterprises were growing rapidly in size, and were passing into a serious stage. The lack of staff was not from inability to create the necessary

administrative machinery, and insure its efficient working, for he maintained a spy system which rivaled that of Cardinal Richelieu. It is more likely that his intense desire to stand alone, in order to receive all the credit for what was done, was the secret of his action.

This brings us to the chief defect of his character. Although undoubtedly the greatest military genius that ever lived, he overreached himself. This is shown in a single enterprise like the Russian campaign; but it is shown in his life as a whole. He could probably have accomplished the anomaly, with the mercurial French, of founding a personal dynasty upon the French Revolution which beheaded royalty and announced the rights of man; but when he attempted to remake the map of Europe he reckoned beyond his power. He realized that the armies of the Republic had been animated by a passion for liberty, equality and fraternity, but he could not understand that his aggressions upon other countries deprived his armies of this moral force, and implanted it in his enemies; and that no skill in strategy and tactics could long withstand it. He would not permit a group of great

administrators and military leaders to share his honors, and form around him a cabinet, which might have protected him against himself. And so he plunged forward, unadvised, and talking of his star and destiny, to his Waterloo.

MODERN CONDITIONS

The new features appearing in modern war are the vast increase in the size of armies and the deadly power of firearms. In preliminary mobilization the chief advantage to be gained is speed. To this end, and because the conditions of mobilization can be largely foreseen and controlled, the solution which is applied is detailed preliminary planning. Duties are carefully assigned to separate individuals, in such a manner as to effect the utmost speed, through a smooth co-ordination of movements, without overloading any one person.

The first great master of modern preliminary planning of mobilization was Von Moltke. In his description of the mobilization for the Franco-Prussian war of 1870-71, he thus criticizes the advance of the French army. "The regiments had marched out of quarters incomplete as to numbers, and

insufficiently equipped. Meanwhile the reserves called out to fill their place had choked the railway traffic; they crowded the depôts, and filled the railway stations. The progress to their destination was delayed, for it was often unknown at the railway stations where the regiments to which the reserves were to be sent were at the time encamped. When they at last joined, they were without the most necessary articles of equipment. The corps and divisions had no artillery or baggage, no ambulance, and only a very insufficient number of officers. No magazines had been established beforehand, and the troops were to depend on the fortresses. These were but ill-supplied, for in the assured expectation that the armies would be almost immediately sent on into the enemy's country, they had been neglected. In the same way the staff-officers had been provided with maps of Germany, but not of their own provinces.

"When the Emperor arrived at Metz, a week after the declaration of war, the regiments were not yet complete, and it was not even exactly known where whole divisions were at that time encamped. The Emperor ordered the troops to advance, but

his marshals declared that the condition of the troops made this impossible for the time being." And so, we may add, the effort to carry the war onto German territory failed.

The advance of the Prussian army is thus described by Von Moltke:

"The means of mobilizing the North German army had been reviewed year by year, in view of any changes in the military or political situation, by the Staff, in conjunction with the ministry of war. Every branch of the administration throughout the country had been kept informed of all it ought to know of these matters. The orders for marching, and travelling by rail or boat, were worked out for each division of the army, together with the most minute directions as to their different starting points, the day and hour of departure, the duration of the journey, the refreshment stations and place of destination. At the meeting-point cantonments were assigned to each corps and division, stores and magazines were established, and thus, when war was declared, it needed only the royal signature to set the entire apparatus in motion with undisturbed precision. There was nothing to be changed in the directions originally given; it sufficed

to carry out the plans prearranged and prepared."

In strategy, which includes the general movements of a campaign, preliminary planning is of course impossible. The distances separating the several divisions of a great army, the time which would be required to make voluminous reports to headquarters and to receive back detailed instructions, and the innumerable local conditions which cannot be adequately grasped by one at a distance, make it impossible that highly centralized control should exist.

Here the flexibility of the German army system is shown. In contrast to the rigid plan of mobilization imposed by central authority, when the campaign is once under way and changing and uncertain conditions have to be dealt with, the headquarters becomes responsible only for the general features of the plan of operations.

Authority immediately passes down the line to army commanders, and regimental and company officers, lodging as close as possible to the time, place, and agencies of specific action. The army then becomes, not a mechanism under the thumb of a single leader, but an organism with great liberty of action,

and corresponding responsibility resting upon the parts.

It is reputed that Von Moltke once said that nothing should be ordered which it was conceivable could be carried out by the proper officers without orders. Certain it is that the orders from headquarters in the Austrian and Franco-Prussian wars were very few in number, and composed of but a few sentences each. Passing from higher to lower units, orders from the leaders of separate armies, corps orders, and division orders, were, of course, progressively firmer and more detailed.

In the modern tactics of engagement, a similar rule as to the location of authority is followed. While each army headquarters retains sufficient control to insure harmony of plan, details of execution are intrusted largely to the officers on the field, and in direct command of the minor divisions of troops. The old ramrod drill movements of troops on the field of battle are no longer possible. Discipline is now interpreted broadly that each individual shall apply sound principles in every emergency, remaining as continuously in touch with authority as this will permit. The fear of

minor mistakes is as nothing, with modern military administrators, in comparison with the fear of crushing out the spirit and energy of troops and lower officers by unduly suppressing initiative.

All this manifestly calls for a superior class of executives of all ranks, adequately prepared for their duties. To provide such officers, Germany has perfected her War College and General Staff with every educational and scientific agency which human ingenuity can devise. To these institutions the flower of the regimental officers is drawn for training, and to assist in the solution of the problems upon which the Staff works. From these institutions they soon return to the regiments. A constant transfusion of talent is taking place between the regimental line and the General Staff. Thus is insured to the commander-in-chief a body of capable officers familiar with each element of service, and trained to intelligent co-ordination of efforts.

When shall the great affairs of a country's industry be administered with equal enlightenment with this business of destruction and bloodshed?

Chapter III

ADMINISTRATIVE PRINCIPLES

IN comparing the administration of military and business affairs, I do not wish to create the impression that business should be run exactly as an army is commanded; much less to imply that a defense for anything harsh and brutal in business can be found in considering it as a kind of warfare. When Sherman once made a celebrated remark about what war was, he referred only to the immediate results, and not to the ultimate purpose. It may be said that the sufferings of a just war lead to the joys of a nobler peace, as the drudgery of industry leads to economic well-being. The nature of these activities is to purchase a desired good through suffering.

No doubt the harshness of the immediate purpose of one tinges its methods in a way wholly unjustified in the other. In one the tests of efficiency of the executive are few and irregular, inexact, and darkly confused by uncertain knowledge; but they are of

enormous importance, so that an early failure seldom permits a retrieval. Industry enjoys the advantage of frequently recurring, easily measured tests, so capable of classification that a gradual growth in responsibility is possible as individual capacity is proved. In the one case, costs are almost ignored; in the other, they are a large part of the essence of victory. In one the issues are striking, and naturally stir the soul of man; while in the other, insight of interpretation is needed to perceive that, under a prosaic exterior, the results are of the nature of life itself.

The purpose of comparing the two with respect to administrative procedure is to make each illuminate the real nature of the other, for each simply clothes in concrete forms the workings of general principles which are based upon the ways of human nature and the material world.

DECISION

War presents to us cases where the word of a commander-in-chief will mean the death of thousands of men in a few hours. So clearly does this show the harrowing anxiety which must rest upon the mind of the

military leader, that we can see, through this emphasized case, that it is doubt and anxiety which are the great enemies to be conquered by the executive who would assume responsibility. Napoleon said at St. Helena: "People rarely have an idea of the strength of soul it requires to deliver, after full reflection on its results, one of those great battles on which depends the fate of an army, or a country, or the possession of a throne. And," he added, "few generals are diligent in seeking battle, although without it no decisive results can be gained."

Great leaders have always shown facility in passing over the deadline which separates deliberation from action. Frederick the Great, in the earliest work assigned to him, in his twenty-third year, showed great power of making up his mind clearly and definitely. Wellington, in the most anxious weeks of his life at Brussels, showed a decision following so instantly upon perception, that his mind was unembarrassed and perfectly at ease. Cæsar is recorded to have hesitated at the point of decision only once, and then but for a few hours on the banks of the Rubicon; and this may have been to test his generals.

The executive must have the power to con-

centrate attention, to think things through to conclusion, and to master and exterminate doubt. Then, by act of will, he must decide; and show that his shoulders are broad enough to bear the responsibility. The first requisite in the executive, therefore, is the power of decision.

INITIATIVE

Decision insured, the next question is the proper time for it. There is much to be found in the literature of war in favor of taking the initiative, and forcing the opposition to a course of action which it might not otherwise have freely chosen. As we have seen, Napoleon's plan was to concentrate, and strike, before the enemy was prepared. Jomini, who first formulated Napoleon's practice into a system, says: "If the art of war consists in throwing the masses upon the decisive points, to do this it will be necessary to take the initiative. The attacking party knows what he is doing, and what he desires to do; and he leads his masses to the point where he desires to strike. He who awaits the attack is everywhere anticipated; the enemy fall with large force upon fractions of his force; he neither knows where

his adversary proposes to attack him, nor in what manner to repel him."

The party which takes the initiative can make specific preliminary preparation for what is next to happen; while the party which is on the defensive cannot do so. The initiative brings one to the decisive point under the moral headway of an affirmative state of mind, and with the consciousness of being committed. The cultivation of the initiative stimulates activity. As the late Professor James might have said, by acting as if one possessed courage, courage is produced.

It was the historian Livy who first observed what many a military writer has since repeated: "People's apprehensions are greater in proportion as things are unknown." The initiative lessens apprehension and makes the decision easy in two ways —it gives us other occupation than foreboding and it reveals in the true state of things a situation better than that imagined. Active initiative develops the habit of decision; and the results of it yield us the greatest variety of experience, not only of others, but of ourselves as well.

One of the chief advantages of the policy of taking the initiative is that it permits the

utilization of the strategic moment. The first operation which raised Napoleon to fame involved the strategic moment. He was besieging Mantua, and the Austrians, sending a relieving army south from the Tyrol, made the mistake of dividing it, sending a column on either side of Lake Garda. The lightning is not quicker than was Napoleon to seize the advantage offered him. He abandoned the siege of Mantua, and attacked first one and then the other of the separated armies, before they could unite, driving them with great loss back into the Tyrol. He who takes the initiative has, in a measure, the choice of the place, the time, and many of the circumstances of action.

PRELIMINARY PLANNING

Preliminary planning is a form of taking the initiative; it is distinguishable from it only by the length of time involved, and by the degree of probability that what is done will eventually apply. It co-ordinates itself perfectly with the policy of taking the initiative, for, as we have seen, only that can be specifically anticipated, and prepared for, which one himself initiates.

As the current power of an organization,

as of an individual, has a limit, preliminary preparation is a means of increasing force; for by it energy, or the results of energy, may be stored up, ready for concentrated delivery at the desired moment. It makes action more decisive by giving a sort of strength different from that of initiative; for it provides what cannot be prepared later, together with what can as well be prepared in advance.

The most scientific preparation now made for any form of human activity is probably that made for war by the German War Academy and the General Staff. The Academy admits young officers, on efficiency tests, and completes their military training. It covers not only the subject of war, in all its branches, but science and modern languages. Formal studies are supplemented by constant field exercises in collecting information, and in the solution of practical problems, and by exercise with "war games."

The Staff is recruited from the best men who pass through the Academy. Its functions are to gather information about all countries, to make topographical surveys, to test new arms, rations, and equipments, to standardize camp and supply methods, to

compile the official military history, to plan mobilization, and, generally, to serve as the inventing, organizing, and inspecting authority of the army.

The results of German wars show whether these agencies are efficient or not. In the case of the Austrian war of 1866, in fourteen days from the declaration of hostilities, Prussia was in possession of Hanover, Hesse-Cassel, and Saxony. In nineteen days the battle of Königgrätz, which decided the war, was fought. It was all over in seven weeks. Likewise in the war of 1870-71, although France confidently expected to invade Germany, she found herself in a few days fighting an invasion. The armies of France were promptly separated, and all the decisive work was over again in seven weeks. In that war the standardizations were so accurate on the German side, and the agencies of correlation were so adequate, that there was no failure of the center to keep in touch with the outposts. There was no failure of ammunition at a critical time, and cases were rare of troops suffering deprivation from lack of food or supplies.

These institutions are the embodiment of two comparatively simple, but exceedingly

fundamental, principles of efficiency. The first is vocational training for all persons placed in important positions; the second is the compilation of all useful knowledge which can be better gained in advance, by experts, through study, than later, by general executives, through action. These two institutions, so successful in making Germany the leading military nation of the world, could be duplicated by us, in America, as industrial institutions, for a tithe of the waste they would save, and would exercise the most beneficent effects upon the general welfare.

SUBORDINATION OF DETAIL

Military history has passed through the stage in which the affairs of a standard-sized army can be controlled in matters of detail, as well as in matters of general plan, by any one person, even though he be an all-around genius. Frederick's kingdom was of such small size that he could keep his fingers upon everything, even the daily culinary arrangements of the royal household. Napoleon, with matchless celerity in work, confessed that he fully controlled his affairs only in the short period of his prime. Occasionally a rare mind like that of Frederick or of Na-

poleon will show equal facility in the most extensive plans or in the minutest details, but most minds lack the force and flexibility to sustain fresh and vigorous action on so many planes. In war the day of piling up tasks in such an indiscriminate manner at headquarters that only a heaven-sent genius can insure success, passed when the Germans began the application of the principles of administration to military matters.

It is clear that for the lodging of any administrative function, and the resting of the corresponding responsibility, there must be a certain ideal point in the administrative hierarchy of any organization. This point is where the problem of keeping in touch with the specific details of the agencies of the action controlled is approximately equal in difficulty to the problem of keeping in touch with the general plan of which that action is a part. To move a function from this point towards headquarters is to lose touch with specific conditions; to move it closer to the agencies of performance is to lose touch with the general plan.

As organizations grow, one function after another should take its departure from headquarters and pass down the line of adminis-

tration, drawn to lower levels by the necessity of keeping in touch with local conditions. The definition of what constitutes detail for an officer, in a growing organization, expands. Headquarters gradually change from a directing into a co-ordinating agency.

From the point of view of a superior officer, this sifting of everything to its proper level is the problem of the subordination of detail. The man of capacity often errs by working with energy rather than intelligence; not seeing that efficiency does not mean alone to do a great deal, and do it well, but means also to be constantly engaged upon tasks of one's calibre. If an organization is not large enough to keep a man of talent at his maximum work, the permanent solution is not to allow the individual to add lower functions, and shade out the subordinate executives, but to use this surplus talent for attacking the most important difficulties which restrain growth, so that with the increase in the size of the organization there will come abundance of the proper kind of work.

It is undoubtedly a fact that very many organizations are in a state of being strangled by undue concentration of work at headquar-

ters, while the subordinate ranks are soldiering. The proper place for deliberation, and even leisure, is where the far-reaching decisions are being made.

From the point of view of the minor official, the proper division of administrative functions means dignifying him in the eyes of those over whom he is set. Stimulus comes from the opportunity to do a task large enough to arouse the interest; and efficiency, from the freedom to bring one's personality to bear in a manner harmonious with its nature. Well scattered responsibility sobers and settles a force of executives, and develops and seasons their talents; for individual character is not developed by imagining responsibility, but by actually carrying it.

In conclusion, it is good policy to push decentralization and discriminating deputizing somewhat ahead of the needs of the immediate situation, with a view to the advance preparation of those agencies which growth will require. The progress of an organization is largely due to the ambitious upward pressure of the ranks below. Judicious liberty will increase this pressure, and form a prime means of insuring the future.

DISCIPLINE

The preceding discussion may suggest the fear that freedom of individual action will destroy discipline. The object of discipline is concert of action. The efficiency of it depends upon developing in a body of men such confidence on the part of each individual that every other person will play his part, that expenditure of energy to make sure of this is saved, and the full force of each is free to be expended in doing his own work.

The amount of freedom which is compatible with discipline depends not only upon preliminary practice, and action made second nature, as in the drill of the parade ground, but it depends upon the quality of the human material involved. Upon this depends what will appeal, and so what means must be used to make harmony of action doubly secure.

On its lowest plane, discipline is a training of instinct which insures a step-by-step compliance with a series of acts, which are means to an unexplained end. On its highest plane, it is such enthusiasm for the end, that the full use of the powers of each individual, in choosing the wisest steps to attain it, may be depended upon. The great point is that

these different planes tend to be mutually exclusive; so that it is of the greatest moment to choose that form of discipline which best agrees with the nature of the circumstances, and of the end in view.

CONCENTRATION TO SECURE SUCCESS

An analogy is suggested between Napoleon's practice of concentrating the masses of his troops to attain superiority at the point of contact with the enemy, and similar policies in industrial affairs. This rule of attacking the opposition piecemeal, with one's full force, is described by Mr. F. W. Taylor in his "Shop Management." He says (p. 144): "It is of the utmost importance that the first combined application of time study, slide rules, instruction cards, functional foremanship, and a premium for a large daily task should prove a success, both for the workmen and for the company, and for this reason a simple class of work should be chosen for a start. The entire efforts of the new management should be centered on one point, and continued there until unqualified success has been attained." . . . "Thus," continued Napoleon, "I beat it in detail, and the victory which was the result was always,

as you see, the triumph of the larger over the lesser."

Nor must the effect of success upon the spirit of resolve in the individual, and upon the *morale* of a group, be forgotten. To induce a body of human beings to exert their powers, in combined action, with some degree of completeness, the aims must be worthy, they must be joint aims, in which all share, the relation between the work of each and the realization of the aims must be clear, and there must be faith that success will be achieved.

It may be said that the more precarious the prospects of an organization are, the more essential it is that a series of successes should be achieved, even though it be composed of very small ones. The position of a captain of industry, who has but a slight hold upon the public through advertising, and who must deal with an unstable body of stockholders, is somewhat similar to the position of Wellington in Spain, who dared not run any avoidable risks for fear a defeat would cost him the support of the government at home.

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